

## INTRODUCTION

This document provides an initial framework by which the National Weather Service (NWS) proposes to migrate severe thunderstorm and tornado watch responsibility from the Storm Prediction Center (SPC) to Weather Forecast Offices (WFO). The pages that follow provide I. a Background that gives a brief history of events leading up to the decision to change responsibility for severe local storm (convective) watches; and II, the Operations Concept that briefly describes each *Phase* of the Plan and overviews internal/external coordination and service evaluation. The next four sections explain each Phase (I through IV) in greater detail, including goals, training, field test plans, service evaluation, and operations. Examples of products generated by SPC and future WFOs are provided in the Product Format Plan, as well. Section VII identifies specific tasks and responsibilities. Finally, an Appendix lists the time line for accomplishing decentralization tasks.

This document should be considered dynamic in nature. Implementation of elements or timetables within this Plan are subject to modification due to advances in technology, changes in availability of required technologies or personnel, or changes in other critical components necessary to accomplish the Convective Watch Decentralization.

## LIST OF ACRONYMS

AA	Assistant Administrator for Weather Services
AFGWC	Air Force Global Weather Center
AFOS	Automation of Field Operations and Services
AIRMET	Airmen's Meteorological Information
AMS	American Meteorological Society
ATA	Air Transport Association
AWC	Aviation Weather Center
AWIPS	Advanced Weather Interactive Processing System
COMET	Cooperative Program for Operational Meteorology, Education and Training
CWFA	County Warning and Forecast Area
FA	Area Forecast
FOS	Family of Services
GOES	Geostationary Operational Environmental Satellite
HWG	Hazardous Weather Guidance
ICWF	Interactive Computer Worded Forecast
LDAD	Local Data Acquisition and Dissemination (in AWIPS)
LOT	Local Office Team
MAM	Mesoscale Alerting Message
MAR	Modernization and Associated Restructuring
MIC	Meteorologist-in-Charge
MSD	Meteorological Services Division
N-AWIPS	National Center AWIPS
NAWAS	National Warning System
NCEP	National Centers for Environmental Prediction
NCO	NCEP Central Operations
NEXRAD	Next Generation Weather Radar (WSR-88D)
NOAA	National Oceanic and Atmospheric Administration
NSSFC	National Severe Storms Forecast Center
NWA	National Weather Association
NWR	NOAA Weather Radio
NWS	National Weather Service
NWSFO	NEXRAD Weather Service Forecast Office
NWSO	NEXRAD Weather Service Office
NWWS	NOAA Weather Wire Service
OM	Office of Meteorology
OML	Operations Manual Letter
PC	Personal Computer
ROML	Regional Operations Manual Letter
SAAS	State Association of ALERT Systems
SAW	Preliminary Notification of a Watch
SEL	Severe Local Storm Public Watch Narrative
SEV	SPC Convective Watch County Listing (Phase I)/Guidance Watch (Phases II/III)
SIGMET	Significant Meteorological Information
SLS	NWSFO/NWSO Convective Watch County Listing
SPC	Storm Prediction Center
UGC	Universal Geographic Code
UTC	Coordinated Universal Time
WCM	Warning Coordination Meteorologist
WCN	Watch Clearance Notification
WFO	Weather Forecast Office
WSOM	Weather Service Operations Manual
WSR-88D	Weather Service Radar 1988-Doppler
ZIP	Zone Identifier Program

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**CONVECTIVE WATCH DECENTRALIZATION PLAN**  
**Office of Meteorology**  
**National Weather Service Headquarters**

**I. BACKGROUND**

The Modernization and Associated Restructuring (MAR) of the NWS integrates a wholesale upgrade in science, technology and personnel with a revamping of the NWS field office structure. The purpose of the MAR is to enhance the Agency's ability to fulfill its mission of protecting lives and property. Historically, that mission has involved issuing convective watches. In the scientific, technological and professional environment from the middle 1950s through the early 1990s, the National Severe Storms Forecast Center (NSSFC) was best equipped to perform the convective watch function. Because of the MAR, new technologies including NWS Doppler radar (WSR-88D), an Automated Surface Observing System, a new generation of GOES satellites, a Doppler-based wind Profiler, advanced National Centers for Environmental Prediction (NCEP) computer models, and the Advanced Weather Interactive Processing System (AWIPS) will exist at WFOs. Additionally, new levels of scientific understanding, training, and professionalism will exist at WFOs. Incorporating these many new resources into the operational field office environment means that the WFO will be capable of providing convective watches for their areas of forecast responsibility. By the end of the decade, the convective watch function will shift to WFOs.

**Approach**

Each Phase of the decentralization is designed with largely the same progression of events, including 1) field testing, 2) service evaluation of the field test, 3) operations, and 4) service evaluation of operations. Each operational Phase is a risk reduction for the subsequent Phase. Throughout the decentralization, risk is kept to a minimum while product quality increases. Prior to each Phase is a period of planning and development, including planning for training, field tests, operations, service evaluation, and software development.

Once plans for field testing have been approved, needed training completed, software/hardware developed, and communications enabled, a field test will assess the usefulness of equipment, products and communications. Service evaluation will parallel the field test, during which time needed adjustments can be made. On the basis of a favorable service evaluation report at the conclusion of the field test, a decision can be made to proceed with operations.

Once plans for operations have been approved, and necessary administrative procedures taken (WSOM Chapter updates, product change requests, customer notifications, etc.), operations for the Phase may proceed. Again, service evaluation parallels operations, and changes may be made to operational procedures should conditions warrant. A service evaluation report will be made six months after the commencement of each operational Phase. Based on a favorable report, recommendation would be made to the Assistant Administrator for Weather Services (AA) for proceeding with the subsequent Phase.

**Decentralization Teams**

Teams of subject matter experts are addressing specific tasks associated with the decentralization. Those teams address the following concepts:

<u>Science Application-</u>	training, field testing/assessing, risk reduction/
<u>operations</u>	
<u>Service Evaluation -</u>	coordination with Customer Advisory Panel and the

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Director's Advisory Committee on Forecast Operations (DACFO), service evaluation methodology  
Product Formatting - AWIPS product development, internal/external needs for coding and product content/structure.

#### Science Application.

A major element in creating a scientifically credible decentralization plan is to ensure that it includes sound mechanisms for training staff, conducting field tests, and conducting operations that serve as risk reductions for subsequent Phases. A Science Application Team consisting mainly of Science and Operations Officers (SOO) fills this role. Also part of this team is are representatives from SPC, COMET, the National Weather Service Training Center (NWSTC), and the NEXRAD Operational Support Facility Operations Training Branch (OTB). The team met in May of 1996 to begin structuring a convective watch decentralization forecaster training plan. The team delivered a Convective Watch Decentralization (CWD) Training Plan in the Spring of 1997.

#### Service Evaluation.

Another critical aspect to providing the best convective watch products and services evaluating and reacting to information on quality. A Service Evaluation Team was responsible for developing a plan for collecting, analyzing and responding to comments and suggestions from future WFOs, RFCs, NCEPs, WSH, and our external customers. This Team consisted of Warning Coordination Meteorologists (WCM) and others who have demonstrated expertise in customer service. Service Evaluation also may be performed by external bodies of expertise, including the AMS Committee on Weather Analysis and Forecasting and the Board of Certified Consulting Meteorologists, as appropriate. The Service Evaluation Team will work dynamically with the Customer Advisory Panel (II.C below), NWS Regions, and the DACFO to ensure internal and external input into the service evaluation process. The Service Evaluation and Science Application Teams will work closely on developing scientifically sound evaluation methodologies. A Service Evaluation Plan was generated by the Team in the Spring of 1997.

#### Product Format.

Product assembly, including both content and format, is a concern that requires specific treatment. Based partly on information obtained from the Service Evaluation Team and partly on knowledge of hardware/software needs, the Product Format Team ensures convective watch products are transmitted, received and used effectively both internally and externally. Team members are recognized for their efforts in the area of product format and delivery. Specific concerns include the relationship of convective watch products to AWIPS, Universal Geographic Codes (UGC), needs of customers regarding presentation of information, and communications technologies. A Product Format Plan was generated by the Team in the Spring of 1997.

#### Employee Participation in Implementing Copnvective Watch Decentralization Activities.

Appropriate partnering/negotiating over the implementation guidelines for all phases of the CWD effort will be accomplished by the national levels of the NWS and NWSEO. In accordance with the NWS-NWSEO Quality Through Partnership agreement, the implementation of CWD activities in field offices is an appropriate matter for discussion in Local Office Team (LOT) meetings, consistent with national/regional level guidance. For example, LOTs may choose to participate in the joint development of the office implementation plan for the training of field office meteorologists, as required in the CWD effort. Upon completion of the training, LOTs may choose to review and develop a recommendation to the Regional Director as to the effectiveness of the CWD training and the level of proficiency of the field office

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meteorologists to perform the convective watch function.

## **II. OPERATIONAL CONCEPT**

### **II. A. Overview**

In 1995, the NSSFC was administratively partitioned into the Aviation Weather Center (AWC) and the SPC, both components of NCEP. The convective watch responsibility resides with the SPC. Migrating the convective watch responsibility from the SPC to WFOs is complex due to changes associated with the NWS MAR occurring both in the NCEPs and field offices. NWS field office structure is changing from its two-tiered arrangement (NEXRAD Weather Service Forecast Offices--NWSFO and Weather Service Offices) to a single tiered structure (WFOs). The SPC relocated from Kansas City, MO to Norman, OK and is gaining added guidance responsibilities. Because of the complexity of reassigning convective watch responsibility amid such dramatic changes, the convective watch program transfer will be performed incrementally. Each Phase will be preceded by a field test involving the SPC, field offices, National and Regional Headquarters, and NWS customers. The CWD will begin in 1998 and will be completed in 2001. Upon its completion, WFOs will be issuing convective watches for their County Warning and Forecast Area (CWFA) using guidance from the SPC in conjunction with locally acquired information.

The primary purpose of the SPC is to serve the WFOs. SPC forecaster experience and expertise is of paramount importance to the success of the convective watch program. SPC will provide mesoscale guidance to WFOs on events that may be rare at an individual site. Also, SPC forecasters will keep WFO forecasters advised on areas of potential weather hazards through narrative alerting messages. In addition to serving WFOs, the suite of products and services from SPC will be useful to other National Centers, to River Forecast Centers (RFC), and to a wide variety of agencies outside the NWS. SPC products under development include a suite of guidance narratives, graphics and, later, gridded data. Many products will be non-technical or semi-technical, others will be highly technical in nature (as with gridded data and narrative discussions).

### **II. B. Incremental Phases**

The CWD will be accomplished over four Phases. As stated above, each Phase will include a field test and operations, with service evaluations of each. Successful implementation of each Phase will mean that plans can move forward to implement the next Phase. While the Phase is ongoing, the next Phase's field testing can be conducted (a time line of planned activities is provided as an Appendix). Field testing, service evaluation, and operations are described in general within this document. Rigorous descriptions of product formats, service evaluation, and training requirements are provided separately in documents prepared by Decentralization Teams (see above).

**Phase I** changes the convective watch geometry from a parallelogram to a polygon of not more than six (6) sides. The watch usually covers CWFAs of multiple NWSFOs and NEXRAD Weather Service Offices (NWSO). Phase I also introduces a product issued by future WFOs (NWSFOs and NWSOs) to redefine and clear watches, called the Watch County Notification (WCN). It allows both external customers and the SPC to update their watch information based on Universal Geographic Codes (UGC). Successful implementation of Phase I is predicated on the availability of voice conferencing capability equivalent to the National Warning System (NAWAS) at SPC and future WFOs, as well as computer software at the SPC, NCEP Central Operations (NCO) and future WFOs to transmit and process watch information. Service evaluation of Phase I operations will enable NWS Senior Management to make a determination about proceeding with Phase II.

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**Phase II** is the risk reduction for the initial decentralized environment. A subset of contiguous future WFOs (possessing AWIPS capabilities needed for performing convective watches) will participate. These offices will generate actual watches in real-time, predicated by the existence of narrative, graphical, probabilistic guidance information and guidance watches from the SPC. It is also predicated on the successful implementation of AWIPS at participant WFOs with sufficient power to process data sets from multiple sources, to ingest and display graphical, probabilistic convective watch information from the SPC, to ingest and process a guidance watch from the SPC, to perform intersite coordination, and to communicate WFO watch products externally. Further, it is predicated on the successful completion by WFO forecasters of specific convective watch training, as designed by the Science Application Team (see the Training Plan). Finally, it is predicated on the assurance by the meteorologist-in-charge of each WFO that the Office's forecasters are ready to assume watch responsibility. Evaluation of Phase II will supply information needed for NWS Senior Management to make a determination about proceeding with the initial decentralized environment (Phase III).

**Phase III** is the initial decentralized environment. WFOs generate convective watches based on graphical and/or narrative, probabilistic guidance from the SPC, a guidance watch product from the SPC, NCEP model guidance, and locally-generated diagnostic and observational information. Phase III is predicated on all the Phase II requirements for each CONUS WFO. Service evaluation of Phase III operations will enable NWS Senior Management to make a determination on proceeding with Phase IV.

**Phase IV** is the full implementation of the decentralized environment, using gridded, graphical, probabilistic guidance from NCEP (SPC, in particular). Gridded information flows into the WFO AWIPS, where product generators using locally adaptable parameters are used to create draft watch products. Phase IV is predicated on SPC developing appropriate gridded information that can be transmitted for processing by all AWIPS sites. Service evaluation will be ongoing, and iterative improvements in the convective watch program are expected in Phase IV and beyond.

## **II. C. Preliminary Internal/External Coordination**

In addition to NWS participation, wholesale involvement of NWS customers is planned in order to provide feedback to optimize product utility. To facilitate such involvement and to ensure successful operations, OM has been coordinating the Decentralization with customers since the middle of 1994. Such coordination efforts include:

- Organizing a Customer Advisory Panel to work with the Office of Meteorology (OM) directly and provide ongoing feedback throughout field testing and operations;
- Developing a working relationship with the American Meteorological Society (AMS) Board of Radio and Television Broadcasters through a working group that addresses media concerns regarding the NWS MAR;
- Presenting plans to decentralize the Convective Watch Program at national annual meetings of professional scientific societies, emergency management associations, hydrologic service organizations, and at NWS vendor and customer workshops;
- Publishing OM manuscripts that describe the Convective Watch Decentralization in national emergency management newsletters, commercial vendor newsletters, *The Critical Path*, the *Aware Report*, and in the *Bulletin* of the American Meteorological Society (AMS); and,
- developing product formats with national electronic media.

Internal coordination efforts have included:

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- Discussing the Convective Watch Decentralization concept at national Warning Coordination Meteorologist (WCM) Conferences and at Regional WCM workshops;
- Discussing the Decentralization at NWS forecaster symposiums;
- Discussing the Decentralization concept at WCM Training classes;
- Discussing the Decentralization concept with staff of the NSSFC (now SPC); and,
- Including Regional representatives, NCEP representatives, WCMs, Science Operations Officers (SOO), and MICs in the NWS internal watch decentralization working group.

## **II. D. Service Evaluation**

A comprehensive Service Evaluation Plan was generated in the Spring of 1997.



### **III. PHASE I**

#### **III. A. Goals**

The first Phase of the Decentralization begins the process of migrating the convective watch responsibility from the SPC to WFOs. The NWS goals for Phase I are to:

- Increase the spatial resolution of convective watches by changing the configuration from a parallelogram to a multi-sided polygon;
- Enhance coordination and communication among field offices and between field offices and the SPC;
- Expand the convective watch redefining responsibility to include all future WFOs;
- Introduce field staff to a graphical interface by which to receive, edit, and transmit convective watch products;
- Introduce a new product to allow future WFOs to clear counties;
- Provide hourly updates to watch configurations on the National Radar Summary chart; and,
- Increase awareness and involvement of NWS field forecasters in the convective watch process.

These goals will be accomplished by redesigning the watch format, using the upgraded NAWAS-for-NWS voice communications network, and using ZIP (Zone Identifier Program) PC software for field office processing of SPC watch information (or other PC based software accomplishing the same task). Some future WFOs already will have AWIPS with the Interactive Computer Worded Forecast (ICWF) software by Phase I. At such locations, ICWF will be used instead of PC software.

#### **III. B. Operational Concept**

Future WFOs begins to gain familiarity and responsibility for the watch process in Phase I. The structure and content of convective watch products begins to change, and convective watch responsibilities begin to shift to future WFOs as well. SPC still retains final authority regarding watch issuance, although future WFOs may include or exclude counties in a watch at their discretion. Future WFOs are directly involved in watch decision making, i.e., coordination on the spatial configuration of watch, and issuance of watch clearance notifications.

#### **III. C. Procedures**

##### **III. C. 1. Phase I Field Test**

The Phase I Field Test will be conducted using "canned" data on quiet weather days. The concept of the field test is to evaluate the use of communications hardware/software, product formats and utility, and coordination mechanics. The field test is not an effort to simulate actual watch conditions, when effects of workload and meteorological analysis will complicate coordination issues.

##### **Preliminary Internal/External Coordination.**

Not less than 60 days before the Phase I Field Test begins, OM will begin customer notification regarding distribution of field test products from SPC and future WFOs. Specific products and product format guidelines will be provided via NWS, NWR and the Family of Services (FOS) distribution circuit. Instructions regarding customer feedback will be integral to the notification process.

- Meanwhile, OM will provide information to external customers by:
- The active involvement of the Customer Advisory Panel as it works with OM through the Service Evaluation Team, giving feedback during the Field Test (and throughout the Decentralization);

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- An active relationship with the AMS Board of Radio and Television Broadcasters via the Customer Advisory Panel, addressing media concerns regarding the NWS MAR; and,
- Presenting progress reports on the Convective Watch Decentralization at national annual meetings of professional meteorological, hydrological, emergency management, media, academic, and commercial associations and at NWS customer workshops.

OM will keep NWS Regions, field staff, and NCEP informed through:

- Discussing the Decentralization concept at Regional and national WCM, SOO and other management conferences and workshops;
- Participating in Forecaster Symposiums;
- Discussing the Decentralization concept at WCM Training classes;
- Involving DACFO in the Service Evaluation process; and,
- Providing information through appropriate articles in *The Critical Path* and the *Aware Report*.

### **Conducting the Field Test.**

The Field Test will be performed such as not to impact operations of the SPC or NWS field offices during convectively active days. It is likely to last for a period of not less than 30 consecutive days. Basic procedures (subject to change in the Field Test Plan) are as follows:

During the early morning hours, the SPC Lead Forecaster will declare a Phase I Field Test Day. Criteria for a Field Test Day include: 1) no severe convection forecast within the 48 contiguous states (CONUS), 2) no major hazardous non-convective weather systems expected to impact CONUS NWS field operations, and 3) all major model generating and processing facilities and all communications systems fully operational. Determination of suitable days for testing will be accomplished during coordination calls among NCEP National Centers, including the Quality Assurance Branch of NCEP Central Operations.

Once a Phase I Field Test Day has been declared, NWS field offices will be notified by SPC via voice coordination technology (to be determined). External customers will be notified by the Convective Outlook (AC), an Administer message in AFOS, and a Public Information Statement (AFOS Product Category PNS) from Weather Service Headquarters (WSH). Also, participant offices and Meteorological Services Divisions (MSDs) will be called. This notification will be made as soon as practicable, but no later than 1200 UTC. Following the 1200 Universal Time (UTC) model run, the Phase I Field Test Day will be re-evaluated by the SPC Lead. Should the threat of severe convection or other hazardous weather be apparent based on 1200 UTC data, the Phase I Field Test Day will be canceled by the SPC Lead. Otherwise, plans to issue test watch products will continue. The SPC Lead may cancel a Phase I Field Test Day at his/her discretion based on changes to weather, facilities, hardware/software failure or communications.

There will be six (6) Test Days (TD):

- TD1: 6 adjacent offices in the central plains states (1 watch)
- TD2: 6 adjacent offices in NWS Eastern, Central and Southern Regions (1 watch)
- TD3: 6 adjacent offices in NWS Western, Southern and Central Regions (1 watch)
- TD4: TD1 offices: 3 watches in succession
- TD5: TD2 offices: 3 watches in succession
- TD6: TD3 offices: 3 watches in succession

Test Watch procedures begin with the issuance of a Mesoscale Convective Discussion (MCD), followed by a watch coordination call from SPC to future WFOs, followed by the issuance of a suite of SPC ("canned") test products,

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including:

- ◆ Preliminary Notification of a Watch (AFOS Product Category SAW);
- ◆ Public Watch Narrative (AFOS Product Category SEL); and,
- ◆ SPC County Listing for Watch (AFOS Product Category SEV).
- ◆ Radar Corner Points (RCP)

The participant future WFOs treat the canned SPC products as though they were "live." Future WFOs react to the products by issuing their Watch County Notifications (WCN) for redefine, and conduct any further coordination as they see fit. ALL WFO AND NCEP PRODUCTS WILL BE CLEARLY LABELED **TEST** PRODUCTS. Once WCNs are issued for redefine, the SPC builds and issues products WOU (Watch Outline Update) and RCP for radar summary watch graphic update by NCEP Central Operations (NCO). SPC will issue MCDs and Watch Status Reports (WWA) every two hours and one hour before watch expiration. Future WFOs will issue WCNs for watch clearance as they deem appropriate. SPC routinely evaluates the valid watch at H+20 and H+50, to account for any watch clearances, and reissues products WOU and RCP. During TD's 4, 5, and 6, SPC will perform at least one watch cancellation.

SPC test products during the Field Test reflect their actual counterparts during Phase I operations. The SAW is a brief message to identify the type of watch, its valid times and corner points given in location identifiers and latitude/longitudes, hail size/maximum convective wind gusts, maximum thunderstorm tops and mean wind vector. While not a precise rendition of counties included in the watch, it provides customers with a first estimate of where the threat area exists. The SEL is the public watch narrative that describes portions of states involved in the watch and gives details about the nature of the severe weather threat. The SEV is an NWS-internal product that is transmitted to future WFOs via AFOS. Its purpose is to allow ZIP PC (or AWIPS WarnGen) software to graphically display the future WFOs' counties within the watch. Using ZIP (or AWIPS), future WFOs may add or delete counties and produce the county redefine message. The Convective Watch Status Message (Product Category WWA) is a terse, plain language technical discussion containing a brief nowcast and short term forecast assessing what will be done with a particular watch and why. A Watch Outline Update Message (Product Category WOU) provides NCO with updated and current outlines of convective watches, based on WCNs generated by WFOs. [NOTE: custom ZIP software has been prepared and will be ready for use. However, use of other office PC software is allowed as long as the watch functionality yields the same products in the correct format.] Examples of these products are provided in the Product Format Plan.

Future WFOs will be responsible for two convective watch products during the Phase I Field Test: the redefine and the watch clearance, both issued using the Product Category WCN. The watch redefine is the public product that is the future WFO's listing of their counties included in the test watch (this differs from the SPC's SEV, in that the future WFO has applied their value adding to the SPC county list to produce the redefine). If counties are to be cleared from the watch, a WCN is used also. [Note: AFOS Product Category WCN will not be used for actual products until Phase I operations.] As does the redefine, the clearance uses the Counties UGC to allow customers to clear portions of their watch files electronically. During the test watch, both products will need to be tested to ensure that customers can receive and use them effectively.

#### **Service Evaluation.**

Phase I Field Test evaluation of communications, product format and content, and coordination will give OM information to make any needed modifications before Phase I operations. Details about service evaluation

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methodologies are provided in the Service Evaluation Plan.

During the course of the Field Test, changes to procedures may be made on the basis of customer and/or NWS field office/SPC suggestions. Within 30 days following the close of the Field Test, the Service Evaluation Team will recommend to the Director, OM, whether or not to proceed with Phase I operations.

### **III. C. 2 Phase I Operations**

#### **Preliminary Internal/External Coordination.**

Following approval to proceed with Phase I operations, OM will begin the administrative process of revising Weather Service Operations Manual (WSOM) Chapter C-40, Severe Local Storm Watches, Warnings and Statements, to account for changes associated with Phase I. The revised C-40 should be delivered to NWS field offices not less than 60 days before implementation to allow forecaster familiarization. Meanwhile, customers will be notified not less than 60 days before implementation of Phase I operations via NWWS, NWR, and FOS. Although WCNs already will have been approved for use, official notification of its national implementation will begin not less than 60 days before Phase I begins.

In addition, OM will continue to keep both internal and external customers informed through methodologies discussed in III.C.1.

#### **Operations.**

Implementation of Phase I will mean that the updated SPC products and field office products as introduced in the Phase I Field Test (see above) will become operational, and that pre-existing product formats and procedures will be discontinued.

#### **Service Evaluation.**

Details regarding Service Evaluation appear in the Service Evaluation Plan. Six months after the beginning of Phase I operations, the Service Evaluation Team will report to the Director, OM, regarding their recommendations for proceeding with Phase II. The Director, OM, will convey his recommendation to the AA.

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#### **IV. PHASE II**

Phase II is the risk reduction for Phase III operations. Phase II will involve a subset of future WFOs and will result in operational convective watch products in real time. Once the concept of Phase III operations has been successfully demonstrated by Phase II, the balance of WFOs can begin preparing for Phase III operations.

##### **IV. A. Goals**

This Phase of the Decentralization tests and assesses the initial decentralized convective watch environment. The NWS goals for Phase II are to:

- Shift original convective watch responsibility from the SPC to a cluster of future WFOs;
- Demonstrate that convective watches can be refined both in space and time, based on information uniquely available to WFOs; and,
- Demonstrate the viability of integrating graphical and/or narrative, probabilistic guidance from SPC via AWIPS capabilities into the convective watch process.

These goals will be accomplished within the Phase II area by shifting the mechanism for WFO data acquisition and processing from AFOS and remote sensing processors to an integrated AWIPS data access, display and processing system; by utilizing guidance generating capabilities at SPC available through NCEP AWIPS (N-AWIPS); and, by using advanced coordination and communications capabilities associated with AWIPS. To take advantage of enhancements to the availability of data, it will be essential that WFO forecasters in the Phase II area be fully trained in sub-synoptic and mesoscale convection by having completed all defined training requirements.

##### **IV. B. Operational Concept**

Phase II is designed to be a risk reduction to test and assess the viability of assigning convective watch responsibility to WFOs. In the Phase II area, future WFOs will have achieved Stage II staffing, and will have attained scientific and operational training (as developed by the Science Application Team) sufficient to accommodate the requirements placed on the WFO by the convective watch program. SPC will produce guidance to support WFO convective watches that will include graphical and/or narrative, probabilistic information and guidance watches. While future WFOs in the Phase II area are issuing watches, future WFOs in the rest of the contiguous U.S. will continue operating in Phase I. SPC will continue to provide Phase I products and services for the entire CONUS (i.e., guidance, Preliminary Notifications of Watches (SAW), Public Watch Narrative, discussions, etc.) while also providing their Phase II product suite for the Phase II area.

Conducting Phase I and Phase II operations side-by-side will require substantial coordination and reformatting of SPC and future WFO products. Coordination between Phase II WFOs and SPC will be essential prior to generation of any watches. It is likely that Phase I future WFOs adjacent to Phase II WFOs will need to monitor such coordination and, when the severe convective threat includes both Phase I and Phase II areas, coordination should involve all affected WFOs, future WFOs, the SPC and AWC. Phase I products will have a "look and feel" similar to that of the Phase II products, so external customers will perceive little distinction between the formats of the two Phases. Specifically, the Phase I SPC convective watch narrative and the future WFO county watch redefine, together, will have a similar appearance to the WFO generated Phase II convective watch. This consistency will help customers along the Phase I/Phase II boundary to read and understand the products.

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In the Phase II area, each future WFO's assumption of watch responsibility will be predicated on the MIC's assurance of operational readiness (based on the Training Plan), following acceptance of AWIPS with capabilities identified in section VII.C.1.

#### **IV. C. Procedures**

##### **IV. C. 1. Phase II Field Test**

A subset of future WFOs possessing AWIPS capabilities identified in section VII.C.1. will field test the watches-by-WFO concept. The idea is to have the Phase II future WFOs test coordination mechanics, communications, guidance, and products, and to have internal and external customers provide suggestions for improvement. The Phase II Field Test likely will use "canned" data on quiet weather days. The purpose of the field test is to ensure viability of communications, AWIPS hardware and software, SPC guidance and product formatters, and WFO operational processes. Also, the field test is to ensure both internal and external customers are satisfied with the product suite as received.

##### **Preliminary Internal/External Coordination.**

Not less than 60 days before the Phase II Field Test begins, OM will begin customer notification regarding distribution of field test products from SPC and future WFOs. Specific products and product format guidelines will be provided via NWWS, NWR and the Family of Services (FOS) distribution circuit. Instructions regarding customer feedback will be crucial to the notification process. Meanwhile, OM will provide information to NWS Regions, field personnel and customers through the many contacts identified in section III.C.1.

##### **Conducting the Field Test.**

While the details of the field test have not yet been finalized, in general the Phase II Field Test will use "canned" SPC guidance along with all upgraded hardware and software intended for Phase III operations. It is likely that the field test area will consist of the CWFAs of 5 contiguous future WFOs within the earliest delivery area of AWIPS. The field test is likely to last for a period of not less than 30 days.

Based on the canned data, SPC or a WFO will identify a potentially severe situation developing, and the SPC or WFO Lead Forecaster will initiate a coordination call. Such a "call" will use a combination of AWIPS Intersite Coordination and NAWAS (or its equivalent). [Although WFOs are solely responsible for their watch, the purpose of coordination is to allow SPC the opportunity to share guidance, to keep adjacent offices and the SPC informed about convective watches, and to try and resolve any spatial or temporal discontinuities between the products of adjacent WFOs.]

SPC convective watch products issued for the Phase II field test reflect their Phase II and Phase III counterparts. Phase II SPC products for severe convection will include:

- Short-term Hazardous Weather Guidance Product-Severe Weather (HWG) - A technical discussion, in plain language (except for universally understood contractions), describing expected severe convective activity (slight, moderate, and high risk or in probabilistic format) across the CONUS. The product also gives meteorological reasoning. The hazardous weather guidance provides a severe weather outlook for day 1 in 6-hour intervals, and for day 2 in twelve hour intervals. It is a routine product updated every six hours.
- Guidance Watch - Using Product Category SEV, this NWS-internal message from SPC to WFOs provides a skeletal draft convective watch with valid times and counties to be included. Should the WFO have little or no

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time to address the watch, it will be sufficiently complete to be retransmitted from the WFO as the watch. Otherwise, it will serve as a draft. The SPC forecaster will prepare graphical guidance describing an area of potentially severe convection. Based on SPC forecaster input, N-AWIPS software at SPC will prepare the SEVs for each affected WFO CWFA. The WFO forecaster will use AWIPS to edit the SEV for spatial and temporal distribution and for narrative completeness if time permits. AWIPS will rename the SEV to WCN, the Public Watch Narrative.

Products issued by future WFOs during the Phase II Field Test will be similar to their final Phase II and Phase III counterparts. Future WFOs will use AWIPS to generate public watch narrative WCN, either from the SEV or in free text from the AWIPS formatter. The WCN should contain all encoding, e.g., WMO Headers and UGCs, to ensure proper dissemination to customers. Because the narrative is generated at the future WFO it will include a county listing, so the redefine product no longer will be required.

WFOs also shall continue to be responsible for watch clearance. Should counties need to be cleared during the watch, a WCN shall be used. During the Phase II Field Test, WFOs will need to test the WCN both for watch issuance and clearance (now being issued through AWIPS) to ensure their customers can receive and use them.

The SPC shall be responsible for monitoring convective watches nationally for the added purpose of supporting AWC and NCEP Central Operations (NCO). As WFO watch data is ingested by SPC, boundaries are mapped and combined with any adjacent watches in the form of a polygon. Based on future-WFO WCNs, the SPC will update those polygons (using software), and that update information will be provided to NCO to update watch polygons on the National Radar Summary Chart. AWC will use watch information and updates in the course of developing their suite of aviation weather products.

#### **Service Evaluation.**

Details regarding Service Evaluation appear in the Service Evaluation Plan. An update to that Plan will be prepared, if needed, not less than 60 days before the Phase II Field Test. At the close of the Field Test, the Service Evaluation Team will recommend to the Director, OM, whether or not to proceed with Phase II operations.

#### **Practice Watches.**

Following approval by the Director, OM, to proceed with Phase II operations, Phase II WFOs may begin preparing practice watches. The Science Application Team will identify the methodology by which such practice watches are to be conducted and evaluated. The purpose will be to familiarize and train forecasters in the watch process, similar to how NWSO forecasters are being familiarized and trained in other WFO forecast functions. Generally, forecast teams (two forecasters per shift) will perform forecast/watch/warning operations, with the short-term forecaster performing the watch function until warning conditions develop. While warning conditions are present, the long-term forecaster performs the watch function.

### **IV. C. 2. Phase II Operations**

#### **Preliminary Internal/External Coordination.**

Coordinating Phase II, both within the NWS and with customers, will be crucial to its success. Fundamental changes in products and data flow will mean major modifications to the way watch information is created and processed. OM will continue to keep NWS field offices, Regions, National Centers, and other Headquarters offices fully informed about the migration of

convective watch responsibility from the SPC to WFOs. To document Phase II procedures, an Operations Manual Letter (OML) to WSOM Chapter C-40 will be written to accommodate the coexistence of Phase I and Phase II. The C-40 OML will provide detailed guidance for conducting Phase II operations. The C-40 OML will be distributed not less than 60 days before Phase II begins. Wholesale involvement of NWS external customers will continue through the Customer Advisory Panel. The Customer Advisory Panel will meet before implementation of Phase II to make final arrangements to receive and use WFO generated watches and watch related products effectively. A critical aspect, especially for customers addressing national concerns, is being able to accommodate Phase I and Phase II watch information concurrently.

Not less than 60 days before Phase II operations, OM will begin customer notification regarding distribution of new products from SPC and future WFOs. Specific product format guidelines will be provided via NWWS, NWR and the FOS distribution circuit. Also not less than 60 days prior to Phase II, customers will be notified of the changes to public watch product WCN and the introduction of SPC Phase II guidance narratives and graphics (see Operations, below).

Meanwhile, OM will continue to exchange information with NWS Regions and field personnel through the many contacts and activities identified in III.C.I.

#### **Phase II Operations.**

Future WFOs involved in Phase II will use SPC guidance with all upgraded hardware and software intended for Phase II (and Phase III). Phase II operations will provide actual WFO based watches within each WFO's CWFA. The Phase II area will consist of the CWFAs of 5 contiguous future WFOs within the earliest delivery of AWIPS possessing all of the capabilities needed to perform the watch function.

A scheme to number, or uniquely identify, each WFO convective watch is being developed between the NWS and the Customer Advisory Panel. Put simply, watches are numbered:

CccTTxxx, where

ccc is the WFO identifier, TT is the watch type, and xxx is the WFO watch number. This is not to be confused with the Product Inventory List (PIL). The eight-digit alphanumeric includes a two-letter watch type, i.e., TO for tornado, SV for severe thunderstorm, WS for winter storm, F for flash flood, FL for flood, etc. The xxx WFO watch numbers are consecutive by year for all types of WFO generated watches.

#### **Service Evaluation.**

Details regarding Service Evaluation appear in the Service Evaluation Plan. An update to that Plan will be prepared, if needed, not less than 60 days before the beginning of Phase II operations. Six months after the beginning of Phase II operations, the Service Evaluation Team will report to the Director, OM, regarding their recommendations for proceeding with Phase III. The Director, OM, will convey his recommendation to the AA.

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## **V. PHASE III**

### **V. A. Goals**

This phase of the Decentralization completes the migration of convective watch responsibility from the SPC to WFOs. The NWS goals for Phase III are to:

- Complete the shift of original forecast responsibility for the convective watch program from the SPC to WFOs;
- Refine convective watches both in space and time, based on information available to WFOs; and,
- Integrate graphical and/or narrative, probabilistic guidance and guidance watches from SPC via AWIPS capabilities into the convective watch process on a national scale.

These goals will be accomplished by shifting the mechanism for WFO data acquisition and processing from AFOS/PC and remote sensing processors to an integrated AWIPS data access, display and processing system; by utilizing guidance generating capabilities at SPC; and, by using advanced coordination and communications capabilities associated with AWIPS. To take advantage of advances in the availability of data, it will be essential that WFO forecasters be fully trained in sub-synoptic and mesoscale convection by having completed all training requirements as defined in the Training Plan.

### **V. B. Operational Concept**

Phase III is designed to complete the migration of the convective watch responsibility from SPC to WFOs. WFOs will have achieved Initial Stage II staffing, and that staff will have attained scientific and operational training needed to conduct the watch program. SPC will generate graphical and/or narrative, probabilistic guidance and guidance watches to support the WFO watch program. Phase III serves as a bridge to allow all WFOs to accept convective watch responsibilities while awaiting the delivery of gridded guidance from SPC.

### **V. C. Procedures**

#### **V. C. 1. Phase III Field Test**

WFOs not associated with Phase II operations will test coordination mechanics, communications, guidance, and products. The field test will involve internal and external customers who can provide suggestions for improvement. The Phase III Field Test likely will use "canned" data on quiet weather days. The purpose of the field test is to ensure viability of communications, AWIPS hardware and software, SPC guidance and product formatters, and WFO operational processes. Also, the field test is to ensure both internal and external customers are satisfied with the product suite as received.

#### **Preliminary Internal/External Coordination.**

Not less than 60 days before the Phase III Field Test begins, OM will begin customer notification regarding distribution of field test products from SPC and WFOs. Specific products and product format guidelines will be provided via NWWS, NWR and the Family of Services (FOS) distribution circuit. Instructions regarding customer feedback will be crucial to the notification process.

Meanwhile, OM will provide information to NWS Regions, field personnel and customers through the many contacts identified in section III.C.1. and through other mechanisms as appropriate.

#### **Conducting the Field Test.**

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The Phase III Field Test will use "canned" SPC guidance along with all upgraded hardware and software intended for Phase III operations. The field test is likely to last for a period of not less than 30 days.

Based on the canned data, including canned SPC guidance, the SPC (or a WFO) will identify a potentially severe convective situation developing. Either the SPC or WFO Lead Forecaster will initiate a coordination call. Such a "call" will use a combination of AWIPS Intersite Coordination and NAWAS (or equivalent technology). [Although WFOs are solely responsible for their watch, coordination gives the SPC a chance to share guidance and provides WFOs a forum to keep adjacent offices informed about convective watches. Using such coordination, offices may resolve any spatial or temporal discontinuities between their products.]

SPC convective watch products issued for the Phase III Field Test reflect their Phase II counterparts. See Section IV.C.1 for descriptions of these products.

AWIPS capabilities will be critical to WFO use of SPC guidance. SPC graphical and/or narrative guidance sent to WFOs will be ingested by AWIPS, where forecasters will be able to use the SPC guidance to create their watches. Through AWIPS, WFO forecasters will have access to all NCEP information, local data, and remote sensing information needed to generate watch products.

The SPC continues its responsibility for generating information to maintain current watch graphics on the National Radar Summary chart. As watches are ingested by SPC software, boundaries are mapped and combined with any adjacent watches. Information provided to NCO by SPC will keep the National Radar Summary chart depiction of watches current.

#### **Service Evaluation.**

Details regarding Service Evaluation appear in the Service Evaluation Plan. An update to that Plan will be prepared, if needed, not less than 60 days before the Phase III field test. At the close of the Field Test, the Service Evaluation Team will recommend to the Director, OM, whether or not to proceed with Phase III operations.

#### **Practice Watches.**

Following approval by the Director, OM, to proceed with Phase III operations, WFOs not already doing convective watches may begin preparing practice watches. The Science Application Team will identify the methodology by which such practice watches are to be conducted and evaluated. The purpose will be to familiarize and train forecasters in the watch process, similar to how NWSO forecasters are being familiarized and trained in other WFO forecast processes. Generally, duty forecast teams (two forecasters per shift) will perform forecast/watch/warning operations, with the short-term forecaster performing the watch function until warning conditions develop. While warning conditions are present, the long-term forecaster performs the watch function.

### **V. C. 2 Phase III Operations**

#### **Preliminary Internal/External Coordination.**

Since WSOM Chapter C-40 was rewritten to accommodate changes associated with Phase II, the only changes needed will be to terminate Phase I operations. Meanwhile, customers will be notified not less than 60 days before national implementation of Phase III begins via NWWS, NWR, and FOS or other appropriate communications media.

Wholesale involvement of NWS external customers will continue through

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the Customer Advisory Panel. The Customer Advisory Panel will meet before implementation of Phase III to make final arrangements to receive and use WFO generated watches and watch related products effectively.

Not less than 60 days before Phase III Operations, OM will begin customer notification regarding distribution of products from SPC and WFOs. Specific product format guidelines will be provided via NWWS, NWR and the FOS distribution circuit. Also not less than 60 days prior to Phase III, customers will be notified of the changes to public watch product WCN and the introduction of SPC mesoscale guidance narratives and graphics (see Operations, below). Meanwhile, OM will continue to exchange information with NWS Regions and field personnel through the many contacts and activities identified in III.C.1.

#### **Operations.**

National implementation of Phase III will mean that all SPC and field office products from Phase I will be eliminated. This changeover will take place nationally, with all WFOs outside the Phase II area assuming the convective watch function at once. The implementation will be based on AWIPS acceptance and the demonstration of WFO watch proficiency, as determined by WFO MICs under guidelines established in the Training Plan.

#### **Service Evaluation.**

Details regarding Service Evaluation appear in the Service Evaluation Plan. An update to that Plan will be prepared, if needed, not less than 60 days before the beginning of Phase III operations. Six months after the beginning of Phase III operations, the Service Evaluation Team will report to the Director, OM, regarding their recommendations for proceeding with Phase IV. The Director, OM, will convey his recommendation to the AA.

## **VI. PHASE IV**

### **VI. A. Goals**

The final phase of the Decentralization, called Phase IV, applies NCEP gridded data to the WFO convective watch program. The NWS goals for Phase IV are to:

- o Integrate gridded guidance information from SPC into the WFO convective watch process; and,
- o Ensure the end-to-end forecast process involving both NCEPs and WFOs achieves a convective watch program of the highest accuracy that the state of the science allows.

These goals will be accomplished by ensuring that operational products and forecaster training reflect that state of the science. SPC is tasked to develop gridded, graphical, probabilistic guidance of convective potential. Such guidance is to be sent to WFOs, where AWIPS product generators using locally adaptable parameters will be used to create draft watch products. In consonance with SPC's efforts to develop gridded information, WFO forecaster training efforts should continue as described in the Training Plan.

### **VI. B. Operational Concept**

Phase IV completes the Convective Watch Decentralization by placing SPC gridded information into AWIPS and ensuring WFO forecasters can generate high quality convective watches. Using the diversity of information delivered through AWIPS, and based on extensive training in sub-synoptic scale, mesoscale, and storm scale convective processes, WFOs will be qualified to provide high quality convective watches.

### **VI. C. Procedures**

#### **VI. C. 1. Phase IV Field Test**

The Phase IV Field Test Plan, provided in the Fall of 1999, will involve internal and external customers who can provide suggestions for improvement. The Phase IV Field Test likely will use "canned" data on quiet weather days. WFOs will test the use of AWIPS in conjunction with SPC gridded guidance and other related products. Also, the field test is to ensure both internal and external customers are satisfied with the product suite as received.

#### **Preliminary Internal/External Coordination.**

Not less than 60 days before the Phase IV Field Test begins, OM will begin customer notification regarding distribution of field test products from SPC and WFOs. Specific products and product format guidelines will be provided via NWS, NWR and the Family of Services (FOS) distribution circuit. Instructions regarding customer feedback will be crucial to the notification process.

Meanwhile, OM will provide information to NWS Regions, field personnel and customers through the many contacts identified in section 111.C.1. and through other mechanisms as appropriate.

The change from graphical and/or narrative SPC guidance to gridded information will mean major modifications to the way watch information is created and processed. OM will continue to keep WFOs, Regions, National Centers, and other Headquarters offices fully informed about the development of convective watch gridded information.

#### **Conducting the Field Test.**

The Phase IV Field Test will use "canned" SPC guidance along with all upgraded hardware and software intended for Phase IV operations. The field

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test is likely to last for a period of not less than 30 days. Based on the canned data, including canned SPC gridded guidance, the SPC or a WFO will identify a potentially severe situation developing. Either the SPC or WFO Lead Forecaster will initiate a coordination call using a combination of AWIPS Intersite Coordination and NAWAS.

Many of the SPC convective watch products issued for the Phase IV Field Test reflect their Phase II and Phase III counterparts. However, gridded guidance issued during the Field Test reflects its counterpart during Phase IV operations. SPC will ship the gridded guidance, and WFOs will use AWIPS to receive and process the guidance; then, to generate watch products. See section IV.C.1 for descriptions of these products.

AWIPS capabilities will be critical to WFO use of SPC guidance. SPC gridded, graphical and/or narrative guidance sent to WFOs will be ingested by AWIPS, where forecasters will be able to use the SPC guidance to create their watches. Through AWIPS, WFO forecasters will have access to all NCEP information, local data, and remote sensing information needed to generate watch products.

The SPC will continue to be responsible for monitoring convective watches nationally for the purpose of generating information to maintain current watch graphics on the National Radar Summary chart.

#### **Service Evaluation.**

Details regarding Service Evaluation appear in the Service Evaluation Plan. An update to that Plan will be prepared, if needed, not less than 60 days before the Phase IV Field Test. At the close of the Field Test, the Service Evaluation Team will recommend to the Director, OM, whether or not to proceed with Phase IV operations.

### **VI. C. 2. Phase IV Operations**

#### **Internal/External Coordination.**

WSOM Chapter C-40 was updated to accommodate changes associated with Phase III, so the only changes needed will be to add gridded data to any product suite. Meanwhile, customers will be notified not less than 60 days before national implementation of Phase IV begins via NWWS, NWR, and FOS or other appropriate communications media.

Wholesale involvement of NWS external customers will continue through the Customer Advisory Panel. The Customer Advisory Panel will meet before implementation of Phase IV to make final arrangements to receive and use WFO generated watches and watch related products effectively.

Sixty days before Phase IV Operations, OM will begin customer notification regarding distribution of products from SPC and WFOs. Specific product format guidelines will be provided via NWWS, NWR and the FOS distribution circuit. Also not less than 60 days prior to Phase IV, customers will be notified of changes to SPC mesoscale guidance.

Meanwhile, OM will continue to exchange information with NWS Regions and field personnel through the many contacts and activities identified in III.C.1.

#### **Operations.**

National implementation of Phase IV will mean that SPC gridded data will be introduced operationally. This changeover will take place nationally, with all WFOs beginning to use SPC gridded data operationally all at once. Operational considerations in the WFO structure should not change appreciably.

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**Service Evaluation.**

Details regarding Service Evaluation appear in the Service Evaluation Plan. An update to that Plan will be prepared, if needed, not less than 60 days before the beginning of Phase IV operations. Six months after the beginning of Phase IV operations, the Service Evaluation Team will report to the Director, OM, regarding their recommendations for enhancing Phase IV. As necessary, the Director, OM, will convey his recommendation to the AA.

**VII. TRANSITION STEPS**

**VII. A. Phase I (Polygon Watches by Multiple NWSFO/NWSO Area)**

**VII. A. 1. Technologies Required:**

At SPC -

- o Software to display watch redefine and watch clearance information from future WFOs and generate WOU for use by NCO

Action: J. Schaefer (SPC) Done

At NEXRAD Weather Service Forecast Office (NWSFO)/NEXRAD Weather Service Offices

(NWSO) -

- o PC Hardware with communications link into AFOS network

Action: NWS Regional MSDs to ensure capability - Done

- o PC ZIP software with custom capability to ingest and display graphic rendition of SPC product SEV; to make graphical modifications of SEV and produce WSFO product SLS; to edit product SLS as needed to create WSFO/NWSO watch clearance product WCM.

Action: Gary Garnet, SOO NWSO Grand Rapids. Done

- o Voice communications hardware for WFOs and NCEP Service Centers, allowing "party line" capability, with on-demand bridging capability into State and National emergency management contact points.

Action: OM11 (Rainer Dombrowsky) - Available Spring 1998

**VII. A. 2. Staffing:**

- o At SPC - Full staffing relocated to Norman, OK
- o At NWSFOs - Full Stage 1 Staffing
- o At NWSOs - Full Stage 1 Staffing

**VII. A. 3. Training/Planning Required:**

At SPC -

- o Voice communications training materials to be delivered to SPC

Action: OM11 (Bill Alexander/Rainer Dombrowsky) - Due: Spring 1998

- o Watch graphics and narrative creation software.

Action: J. Schaefer, SPC - Done

- o SPC test watch products for field test

Action: J. Schaefer, SPC - Done

At NWSFO/NWSOs -

- ♦ Voice communications training material to be delivered to WSFO/NWSOs-

Action: OM11 (Bill Alexander/Rainer Dombrowsky) Due: Spring 1998

- ♦ Product Format Plan

Action: Product Format Team Due: Done

- ♦ Watch Decentralization Service Evaluation Plan

Action: Service Evaluation Team Due: Done

- ♦ Forecaster Training Plan

Action: Science Application Team Due: Done

- ♦ ZIP PC Software -

- ♦ Action: Gary Garnet to provide documentation, and OM 1

(Bill Alexander) to distribute through MSDs - Due: Fall 1998

**VII. A. 4. Service Backup:**

At SPC -

Operational backup of SPC will be accomplished by Air Force Global Weather Center (AFGWC).

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At NWSFO/NWSOs -

Service backup to be accomplished as described in Weather Service Operations Manual (WSOM) Chapter J-03 and as specified in appropriate Regional Operational Manual Letters (ROMLs).

**VII. A. 5. Forecast Coordination:**

- SPC coordination with other National Centers should be accomplished via voice communications and video teleconference on an as-needed basis to ensure consistency of operational products.
- SPC coordination with NWSFO/NWSOs should be accomplished via voice communications prior to issuance of any watch product.
- NWSFO/NWSO coordination via voice communications with other NWSFO/NWSOs should be performed when counties bordering adjacent NWSFO/NWSO are in SPC watch area (as identified by SPC watch product SEV) and are to be deleted using Watch County Notification product WCN.

**VII. B. Phase II (Watches by Future WFO in Designated Area)**

**VII. B. 1. Technologies Required:**

At Phase II Future WFOs

- AWIPS Capabilities: The following are convective watch decentralization requirements that already have been identified in Techniques Specifications Packages:
  - Local Data Acquisition and Dissemination (LDAD) Functionality
  - Intersite Coordination (ISC)
  - Interactive Computer Worded Forecast and Watch/Warning/Advisory formatters
  - Status Area Weather Update capability

**VII. B. 2. Staffing:**

At SPC - No change from Phase I

At Phase II WFOs - Initial Stage II

**VII. B. 3. Training/Planning Required:**

At SPC -

N-AWIPS operations

Action: Phil Bothwell

- Interactive Skew-T and hodograph capabilities
- Time series, cross sections, streamline and trajectory capabilities integrated with radar/satellite imagery

Action: Storm Prediction Center

Due: Spring 2000

At Phase II Future WFOs -

- COMET Convective Module I, "Anticipating Convective Storm Structure and Evolution"

Action: Pat Parrish (COMET) -

Due: Done

- COMET Convective Module II, "Potential for Convection"

Action: Munson (COMET) -

Due: Done

The CWD Training Plan identifies the suite of competencies forecasters need to have prior to assuming the convective watch function.

Action: SOOs

Complete by:

Spring 2000

**VII. B. 4. Service Backup:**

At SPC - No change from Phase I operations

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At WFOs -

WSOM J-03, WFO Backup Operations, rewritten to incorporate service backup changes associated with MAR reorganization and technologies in Phase II WFO area.

Action: OM11 (Bill Alexander) -

Due: Summer 2000

**VII. B. 5. Operational Coordination:**

At SPC and Phase II Future WFOs-

- o SPC coordination with other National Centers should be accomplished via voice communication, AWIPS/N-AWIPS Intersite Coordination, and video teleconference on an as-needed basis to ensure consistency of operational products.
- o SPC coordination with Phase II Future WFOs should be accomplished via voice communication and/or AWIPS Intersite Coordination. Such coordination should occur at the discretion of either SPC or WFO(s), either to assess the potential for severe convection or to help resolve discrepancies among WFOs.
- o Phase II Future WFO coordination via voice communication and/or AWIPS Intersite Coordination with other Phase II Future WFOs should be performed when counties bordering adjacent WFOs are subject to conditions that may favor a convective watch. Such coordination also may involve SPC.

Details regarding operational forecast coordination will be specified in rewrite to WSOM C-45, Service Coordination, to be implemented July 1998.

Action: OM11 (R. Dombrowsky).

**VII. C. Phase III (Watches by WFO)**

**VII. C. 1 Technologies Required**

No change from Phase II, except implemented nationally

**VII. C. 2 Staffing**

At SPC - No change from Phase II

At WFOs - Stage II staffing

**VII. C. 3 Training/Planning**

At SPC - No change from Phase II

At WFOs - No change from Phase II, except for all WFOs

**VII. C. 4 Service Backup**

At SPC - No change from Phase II

At WFOs-

WSOM J-03, WFO Backup Operations, updated to delete non-MAR operations.

Action: OM11 (Bill Alexander) -

Due: Summer 2001

**VII. C. 5 Forecast Coordination**

No change from Phase II, except implemented nationally

**VII. D. Phase IV (Watches by WFO Using Gridded Guidance)**

**VII. D. 1 Technologies Required**

- o At SPC - Gridded convective watch guidance capability

Action: J. Schaefer -

Due: Summer 2002

- o At WFOs - AWIPS Capability to import SPC gridded guidance and generate WFO watch products

Action: OM22 -

Due: Summer 2002

**VII. D. 2 Staffing**

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No change from Phase III

**VII. D. 3 Training/Planning**

At SPC - No change from Phase III

At WFOs -

To support the convective watch program, forecasters will need to be proficient in using AWIPS adaptable parameters to generate convective watches. Preparation of guidelines.

Action: OM/SPC (Phil Bothwell/Bill Alexander) - Due: Summer 2002

SOOs will be responsible for ensuring WFO forecasters are sufficiently trained on AWIPS software through implementation of OM/SPC generated guidelines.

**VII. D. 4 Service Backup** No change from Phase III

**VII. C. 5 Forecast Coordination** No change from Phase III

## Appendix: Timetable of CWD activities

Activity	Date
<u>Pre-Phase I:</u>	
Customer Workshop I	March 1996
Science App. Decent. Team Mtg	May 28-31 1996
Customer Workshop II	December 1996
Watch Decentralization Plan	January 1997
ZIP software in field/beta-tested	June-Nov. 1997
Service Evaluation Plan	June 1997
Product Format Plan	June 1997
Forecaster Training Plan	June 1997
Customer Workshop III	September 1997
Customer Workshop IV	April 1998
Voice Communications Capability Ready	April-May 1998
<u>Phase I:</u>	
Phase I Field Test	June 1999
Phase I Field Test Svc Eval	June-July 99
OM Decision to implement Phase I	July 1999
Phase I	Oct 99 - Sep 01
Phase I Svc Eval	Oct 99 - Apr 00
AA Decision to proceed w/ Phase II	May 00
<u>Phase II:</u>	
Phase II Field Test	May - Jun 00
Phase II Field Test Svc Eval	May - Jul 00
OM Decision to implement Phase II	July 00
Phase II Practice Watches	Jul - Sep 00
Phase II	Oct 00 - Sep 01
Phase II Svc Evaluation	Oct 00 - Apr 01
AA Decision to proceed w/ Phase III	May 01
<u>Phase III:</u>	
Phase III Field Test	May - Jun 01
Phase III Field Test Svc Eval	May - Jul 01
OM Decision to implement Phase III	July 01
Phase III Practice Watches	Jul - Sep 01
Phase III	Oct 01 - Sep 02
Phase III Svc Eval	Oct 01 - Apr 02
AA Decision to proceed w/ Phase IV	May 02
<u>Phase IV:</u>	
Phase IV Field Test	May - Jun 02
Phase IV Field Test Svc Eval	May - Jul 02
OM Decision to implement Phase IV	July 02
Phase IV	Oct 02 -
Phase IV Svc Eval	Oct 02 -